

2/2 029

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120959

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ORDER TO LOCATE THE SPECIFIC REACTION IN THE DISORDERS IN CARBOHYDRATES METABOLISM AT THE EXPERIMENTAL ATHEROSCLEROSIS INDUCED BY CHOLESTEROL, THE ACTIVITIES OF DEHYDROGENASE OF 3 PHOSPHOGLYCERIC ALDEHYDE (E. C. 12.1.12) AND ALPHA GLYCEROPHOSPHATE DEHYDROGENASE (E. C. 1.1.1.8) IN MUSCLES, BRAIN AND LIVER SUPERNATANT HAVE BEEN STUDIED. THE PRONOUNCED FALL IN THE ACTIVITY OF DEHYDROGENASE OF 3 PHOSPHOGLYCERIC ALDEHYDE IN MUSCLES WAS DEMONSTRATED. THE ACTIVITY OF ALPHA GLYCEROPHOSPHATE DEHYDROGENASE IN LIVER MUSCLES AND BRAIN WAS COMPLETELY INHIBITED. THE CONTENT OF ALPHA GLYCEROPHOSPHATE IN THE HEART AND SKELETAL MUSCLES WAS DECREASED.

FACILITY: CHAIR OF BIOCHEMISTRY, MEDICAL INSTITUTE, KUJBYSHEV.

UNCLASSIFIED

USSR

UDC: 621.374.5(088.8)

SIDORENKOV, N. Ya.

"A Two-Channel Autocompensation Converter Which Converts Pulse Voltage to DC Voltage"

USSR Author's Certificate No 254562, filed 4 Nov 67, published 9 Mar 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G241 P)

Translation: This Author's Certificate introduces a two-channel autocompensation transducer which changes pulse voltage to DC voltage. The main channel of the device consists of a comparison element, a sensitive trigger device, a storage capacitor, and a pulse voltage divider; the auxiliary channel consists of an inhibit circuit, a slave multivibrator and switches. To improve conversion accuracy, an additional storage device is connected through a semiconductor diode to the output of the slave multivibrator in the auxiliary channel. This storage device is coupled to the input of a DC voltage divider whose output is connected to the comparison element in the main channel.

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1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--THE REACTION OF GASTRIC VESSELS IN THE LOCAL COMBINED EFFECT OF
MOISTURE AND COLD ON THE HIND LIMBS -U-
AUTHOR--SICLARENKOV, U.K.
COUNTRY OF INFO--USSR
SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49,
NR 6, PP 36-38
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD VESSEL, DIGESTIVE SYSTEM, REFLEX, COOLING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/0697

STEP NO--UR/0219/70/049/006/0036/0038

CIRC ACCESSION NO--AP0131296

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131295

ABSTRACT/EXTRACT--(U) GP-G- ABSTRACT. IN EXPERIMENTS ON NONANESTHESIZED CATS. THE AUTHOR DEMONSTRATES THAT LOCAL COOLING OF THE EXTREMITIES CAUSES A REFLEX ALTERATIONS OF THE RESISTANCE OF BLOOD VESSELS OF THE STOMACH. MOST FREQUENTLY THERE OCCUR CONSTRICTOR DENNervation OF THE EXTREMITIES PREVENTING THE ORIGINATION OF THESE REACTIONS.

UNCLASSIFIED

Acc. Nr: **AP0052071**

Ref. Code: **UR0396**

PRIMARY SOURCE: Patologicheskaya Fiziologiya i
Eksperimental'naya Terapiya, 1970, Vol 14,
Nr 1, pp 73-74

THE EFFECT OF LOCAL MOIST CHILLING ON ABDOMINAL FUNCTION

O. K. Sidorenkov

Experiments were performed on 10 dogs with an isolated stomach pouch (Pavlov's), and on 4 — with Basov's fistula. It was revealed that prolonged chilling of the posterior extremity led to disturbances of gastric secretion and of the motor function of the stomach.

REEL/FRAME
19820609

USSR

UDC 621.38.61

SIDORIK, YE. P., and KANKO, M. I.

"Biochemiluminescence of Liver During the Effect of Radiation of a Neodymium Laser"

V sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch.2-3 (Use of Lasers in Contemporary Technology and Medicine. Parts 2-3 -- Collection of Works), Leningrad, 1971, pp 84-85 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A509)

Translation: A study of chemiluminescence of the cells of organs and tissues can give considerable information concerning the physicochemical processes proceeding in the cells, and also the effect on these processes of various damaging factors. A study of super-weak luminescence of a liver homogenate was conducted on equipment based on the use of a photoelectric multiplier. The signal from the photoelectric multiplier was amplified by a UIS-2 wide-band amplifier and was recorded on a recording instrument in the form of a curve of the kinetics of chemiluminescence. Biochemiluminescence can reflect the degree of damage of tissues during the effect of laser radiation.

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Oncology

UDC 615.849.19.03:616-006-092.9

USSR

KAVETSKIY, R. Ye., SIDORIK, Ye. P., LIKHTENSHTEYN, V. Ye., and BYALIK, V. V.
Kiev Institute of Experimental and Clinical Oncology

"Intensification of the Antitumor Effect of Laser Radiation"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/Jun
70, pp 12-17

Abstract: Laser radiation has a necrotizing effect on tumor tissue. In order to study the possible intensification of the antitumor effect of lasers by simultaneous administration of dyes or chemicals, tests were run on Guerin rat carcinoma. The research showed that the greatest retardation in tumor growth could be achieved by combined action of a neodymium laser and intraperitoneal or intravenous administration of Trypan blue. For instance, tumor growth was depressed 91%, instead of 65% when the two agents were used separately. The most active combination for injection into tumors was laser radiation and Janus green. Histological study of tumors after introduction of various dyes showed that changes were similar, and differed from those observed in controls only by a more pronounced tissue edema. Combined application of laser radiation and TIOFET or fluorouracil was effective in a case of Harding-Passy melanoma. The data obtained confirmed that with either combined application or only the laser the focus of necrosis in the ganglia of the erythromyelosis is comparatively slight, whereas along the

USSR

KAVETSKIY, R. Ye., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/Jun 70, pp 12-17

periphery the tumor tissue retained its usual structure. After combined application, only an insignificant proliferation of connective tissue was noticed. The character of the changes due to combined application of laser radiation with dyes or chemicals was the same as if only the laser had been used; however, the spatial restriction of the disease was greater when the laser was combined with either dyes or chemicals. The specific advantages of using a laser in the impulse mode are shortness of the irradiation period, and the monochromatic character and coherence of the radiation itself.

USSR

UDC: 362.11:615.849.197:658.5

SIDORIK, YE. P., LAZAREV, I. R., and KOGUT, T. S., Institute of Experimental and Clinical Oncology, Kiev

"Organization of a Laser Therapy Department"

Moscow, Gigiyena Truda i Professionalnyye Zabolevaniya, No 12, Dec 70, pp 41-43

Abstract: Measures for the protection on personnel in laser therapy departments against the known harmful effects of laser radiation on vision and the mucous membranes are of paramount importance. The arrangement of the laser therapy department set up at the Kiev Scientific Research Institute of Experimental Oncology, Ministry of Public Health Ukrainian SSR, is described. A block diagram of a laser modified for clinical use is presented. All personnel working in the unit are kept under continuous medical surveillance. Closed-circuit TV is used for monitoring the patients during treatment.

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1/2 032 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--INTENSIFICATION OF ANTIBLASTIC ACTION OF EMISSIONS OF THE OPTIC
QUANTUM GENERATORS LASERS -U-
AUTHOR--(04)--KAVETSKY, R.YE., SIDORIK, YE.P., LIKHTENSHTEYN, V.YE., BYALIK,
V.V.
COUNTRY OF INFO--USSR
SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970,
VOL 14, NR 3, PP 12-17
DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TGPIC TAGS--TUMOR, CHEMOTHERAPY, BIOLOGIC STAIN, IRON COMPOUND, LASER
RADIATION BIOLOGIC EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1922

STEP NO--UR/0396/70/014/003/0012/0017

CIRC ACCESSION NO--AP0127323

UNCLASSIFIED

2/2 032

CIRC ACCESSION NO--AP0127323

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDIED THE POSSIBILITIES OF ENHANCEMENT OF THE ANTIBLASTIC EFFECT OF LASER RADIATION BY COMBINING THE ACTION OF THE LATTER WITH ADMINISTRATION OF DYES, CHEMOPREPARATIONS AND IRON IONOPHORESIS UPON THE TUMOUR. INHIBITION OF THE GROWTH OF GUERREN TUMOUR OF RATS WAS THE GREATEST WHEN THE ACTION OF NEODYMIUM LASER AND ADMINISTRATION OF TRYPANE BLUE AND JANUS GREEN WAS COMBINED. A COMBINATION OF LASER RADIATION WITH THIDTEPA OF FLUOROURACIL PROVED TO BE EFFECTIVE IN CASE OF GARDING PASSI MELANOMA. THE RESULTS OBTAINED POINTED TO A DEFINITELY SPECIFIC ACTION OF OPTIC QUANTUM GENERATORS WORKING IN PULSE REGIMEN, THIS BEING CONDITIONED BY THE BRIEFNESS OF RADIATION, IT MONOCHROMATIC CHRACTER AND COHERENCE. FACILITY: KIYEVSKIY INSTITUT EKSPERIMENTAL'NOY I KLINICHESKOY ONKOLOGII.

UNCLASSIFIED

SIDORIN A. Ya.

And / 18.760/5.980.73
12

Kirsimulov, B. D. Shock wave parameters
for explosion of a spherical charge in porous
NaCl. FGIIV, no. 4, 1971, 594-595.

Laboratory experiments were conducted to determine the parameters of shock waves in a solid at various porosity values within the range $1 \leq \bar{R} \leq 9$, where $\bar{R} = R/R_0$ is the ratio of the distance R between the point of measurement and the charge to the charge radius R_0 . The effect of rock porosity near an explosion on the explosion parameters in the medium was considered. NaCl powder with a grain size of about 0.3 mm was used to simulate the properties of natural rock. The powder was pressed to densities of $\rho_0 = 2.12, 1.87$, and 1.72 g/cm^3 , and the single-crystal density was $\rho_0 = 2.16 \text{ g/cm}^3$. The porosity of the pressed specimens, defined by the ratio $\nu = 1 - \rho_0/\rho_0^*$ was 2, 11.5, and 20%. The shock-wave parameters were measured by an electromagnetic method proposed by Ye. K. Zavyoskiy. Results show that the porosity of the medium substantially affects the energy dissipation and the shock-wave parameters in the near explosion zone.

Khristoforov, B. D., Ye. E. Goller, A. Ya.
Sidorin, and I. D. Livanov. Manganin sensor
for measuring shock wave pressure in solids.
FGIV, no. 4, 1971, 613-615.

A manganin sensor and circuitry are described for recording plane shock wave pressure in a solid within the range 1 to 10^2 kbar. The plane shock wave in the specimen is actuated by a detonation lens (1, Fig. 1) and explosive charge (2). Variation of the charge density and the introduction

USSR

UDC 669.140:620.10

SIDORIN, I. I., Doctor of Technical Sciences, Professor, and ZVIYAGINA, L. D., Aspirant, Moscow Higher Technical School imeni N. E. Bauman

"A Comparative Investigation of High-Speed Steels for Red Hardness and Wear at High Temperatures"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy--Mashinostroyeniye, No 10, 1973, pp 139-143

Abstract: New methods have been applied for the investigation of high-speed steels. This has permitted the authors to arrive at the following practical conclusions:

1. The hardness and wear resistance of high-speed steels at high temperatures are determined more precisely by direct methods than by technological methods, since the latter are always affected by extraneous factors.
2. Optimal hardness and wear resistance are possessed not by steels with a high tungsten content (R18, R12), but by steels with a lower content of tungsten, additionally alloyed by cobalt and vanadium (R9K5, R9F5).
3. R9K5 and R9K10 cobalt high-speed steels are practically identical with respect to red hardness and wear resistance, and therefore it is inexpedient to use steel R9K10.

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USSR

SIDORIN, I. I. and ZVYAGINA, L. D., Izvestiya Vysshikh Uchebnykh Zavedeniy--
Mashinostroyeniye, No 10, 1973, pp 139-143

4. In view of the high cost of cobalt and the undesirability of its employment for the mass production of high-speed steels, steels R6M5 and R6M3 are the most economical and have sufficiently high properties of red hardness and wear resistance.

5. At a temperature of 700°C, all the tested steels have the same hardness, equal to 300-350 HV, and differ with respect to hardness at 600°C as follows:

Steel R9K5 -- 750 HV

" R9F5 -- 700 HV

R6M5 -- 700 HV

R6M3 -- 600 HV

R18 -- 600 HV

They should differ with respect to red hardness according to the same sequence. 3 figures. 1 table. 2 references.

USSR

UDC 621.74

SIDORIN, I. I., Doctor of Technical Sciences, Professor, SILAYEVA, V. I., Candidate of Technical Sciences, Docent, SLOTIN, V. I., Candidate of Technical Sciences, SOLOV'YEVA, T. V., Candidate of Technical Sciences, Docent, and ESKIN, G. I., Candidate of Technical Sciences, Moscow Higher Technical School imeni N. E. Bauman

"Obtaining a Composite Casting Alloy for Percussive Rock Drills by Means of Ultrasonic Treatment of the Melt"

Moscow, Izvestiya Vysshykh Uchebnykh Zavedeniy, Mashinostroyeniye, No 8, 1972, pp 116-121

Abstract: A composite alloy for cumulative-action percussive rock drills is obtained on the basis of alloy MVTU-3. This alloy has high hardness and strength values, and possesses considerable brittleness and fragmentability. In order to make the alloy still stronger, and to increase its brittleness and fragmentability, refractory carbide particles and oxides, of varied dispersity, were introduced into the alloy in combination with ultrasonic treatment of the molten metal. Best results were obtained with silicon carbide.

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USSR

SIDORIN, I. I., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, No 8, 1972, pp 116-121

As a result of ultrasonic treatment in the molten metal, intensive cavitation processes originate, which bring about dispersion and destruction of the refractory particles; this facilitates wetting of the particles by the base metal, and facilitates their uniform distribution in the composition material. Study of the mechanical properties of compositions of varied content showed that they are determined by the nature of their components, as well as by the quantity and dispersity of the strengthening particles. The properties of the obtained composition alloy in a cast state are presented, before and after ultrasonic treatment. The obtained composition is recommended for the production of cumulative-action percussive rock drill parts operating at high hydrostatic pressures and temperatures of 100-150° C. 1 table. 5 figures. 3 references.

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USSR

UDC 669.01

SIDORIN, I. I., Doctor of Technical Sciences, Professor; MOLYAKOVA, A. A., Assistant; KURKIN, S. A., Doctor of Technical Sciences, Professor; KOSTOGONOV, V. G., Engineer, Moscow Higher Technical School imeni N. E. Baumann, Central Scientific Research Institute of Ferrous Metallurgy

"On the Effect of Plastic Deformation Under Biaxial Stretching at Liquid Nitrogen Temperatures on the Structure and Properties of 1Kh18N10T Steel"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye, No. 12, 1971, pp 105-109

Abstract: The plastic deformation was determined and the structure and mechanical properties of 1Kh18N10T steel were studied. The steel was intended for the fabrication of vessels and various welded reservoirs operating under conditions of biaxial stretching at low temperatures. It is noted that austenite stainless steels are very important structural materials in cryogenic technology and a basic feature of their behavior under deep cooling is a rise in strength while maintaining sufficient plasticity. Experimental data was available on the mechanical properties of many steels of the austenite class under axial

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USSR

SIDORIN, I. I., et al, Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye, No. 12, 1971, pp 105-109

stretching at low temperatures, but there has not been data for biaxial stretching and therefore the effect of plastic deformation under conditions of biaxial stretching on the structure and properties of samples of 1Kh18N10T steel were studied at liquid nitrogen temperatures. Comparison of the results obtained under biaxial stretching conditions with published data for uniaxial stretching shows that the martensite is considerably greater than under uniaxial stretching conducted at a temperature of -196°C . This is in good agreement with the results of strength tests showing a considerably greater effect of strengthening under biaxial stretching than under axial stretching. At a temperature of 20°C both biaxial and uniaxial stretching did not lead to a considerable formation of martensite. It is concluded that the transformation of austenite into martensite under biaxial stretching of 1Kh18N10T steel at liquid nitrogen temperatures occurs considerably more intensively than under uniaxial stretching. This is attributed to the greater intensity of strengthening of the steel under biaxial stretching under low temperature conditions than under uniaxial stretching.

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USSR

UDC: 621.396.9:527.629.78

CHEBOTAREV, R. P., SIDORIN, V. N., POLUSHKIN, G. A., BIBARGOV, R. Sh.,
ISAMUTDINOV, Sh. O., KOLMAKOV, V. M.

"A Set of Equipment for Radar Studies of Meteors in Dushanbe"

Byul. In-ta astrofiz. AN Tadzh. SSR (Bulletin of the Institute of Astrophysics of the Academy of Sciences of Tadzhik SSR), 1970, No 55, pp 24-28
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12G94)

Translation: The authors describe a set of equipment for measuring the wind in the upper atmosphere in the IQSY program at the Institute of Astrophysics of the Academy of Sciences of the Tadzhik SSR. The equipment is designed for determining coordinates, altitudes, radiants and velocities of meteors, and for studying the physics of meteors and of the upper atmosphere. Data are given in brief for operation of the equipment complex. Resumé.

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USSR

UDC: 53.07/.08+53.001.5

ZAYTSEV, L. N., KIMEL', L. R., SEROV, A. Ya., SIDORIN, V. P.

"Recovery of Neutron Spectra Behind Accelerator Shielding"

V sb. Vopr. dozimetrii i zashchity ot izluch. (Problems of Dosimetry and Radiation Shielding--collection of works), vyp. 12, Moscow, Atomizdat, 1971, pp 47-52 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A673)

Translation: The neutron spectrum was measured behind the shielding of a 10 GeV synchrophasotron with the aid of a Bonner counter -- a scintillation detector of boric anhydride and zinc sulfide alloy activated by silver and placed in spherical polyethylene moderators of various diameters. A procedure is developed for restoring the neutron spectrum from the results of Bonner counter measurements. The paper presents neutron spectra behind the shielding of the synchrophasotron at the Joint Institute for Nuclear Research which were reconstructed by the proposed method. All calculations on verifying the procedure and reconstruction of spectra were done on the BESM-6 computer. An analysis of the results shows that the neutron spectrum is approximated by a function of the form $1/E^n$ in various energy intervals, where

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USSR

ZAYTSEV, L. N. et al., Vopr. dozimetrii i zashchity ot izluch., vyp. 12, Moscow, Atomizdat, 1971, pp 47-52

$$n = \begin{cases} 1.3-1.5 & \text{for } 10^{-1} < E < 10^2 \text{ eV} \\ 0.9-1.1 & \text{for } 10^2 < E < 10^6 \text{ eV} \\ 0.5-0.4 & \text{for } 10^6 < E < 10^7 \text{ eV} \\ 1.8-2.0 & \text{for } 10^7 < E < 6.3 \cdot 10^7 \text{ eV} \end{cases}$$

The reconstructed spectra agree with neutron spectra previously measured with the aid of nuclear emulsions of the BYa-2 type with a thickness of 400 microns. M. L.

1/2 030
UNCLASSIFIED
TITLE--RADIATION YIELD BEYOND DIYAI SYNCHROCYCLOTRON SHIELDING -U-
PROCESSING DATE--27NOV70
AUTHOR--(04)--ALEYNIKOV, V.YE., KIMEL, L.R., KOMOCHKOV, R.M., SIDORIN, V.P.
COUNTRY OF INFO--USSR
SOURCE--AT. ENERG. 1970, 28(5), 438-9
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--SYNCHROCYCLOTRON, RADIATION SHIELDING, CONCRETE, ANGULAR
DISTRIBUTION, SPECTRAL DISTRIBUTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/0516
STEP NO--UR/0089/70/029/005/0438/0439
CIRC ACCESSION NO--AP0137605
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137605

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE YIELD OF N (FAST, SLOW, AND MEDIUM ENERGY) BEYOND THE OIYAI SYNCHROCYCLOTRON (600 MEV) SHIELDING WAS MEASURED TO DET. SPECTRAL ANGULAR DISTRIBUTION OF THE RADIATION. THE SYNCHROCYCLOTRON IS LOCATED WITHIN A CONCRETE SHIELDING MEASURING 52 TIMES 38 TIMES 32 M. THE THICKNESS OF THE CONCRETE WALLS IS 2 M. ALL WALLS, WITH THE EXCEPTION OF ONE, WERE ALSO PROTECTED BY A LAYER OF EARTH (10 M THICK). THE MOST INTENSIVE RADIATION LOSS, COMPRISING 50-60PERCENT OF THE TOTAL LOSS, OCCURS THROUGH THE WINDOW OPENINGS.

UNCLASSIFIED

1/2 009
UNCLASSIFIED
TITLE--EXPERIMENTAL ADOPTION OF AN APPARATUS FOR THE CATALYTIC CRACKING OF
A VACUUM DISTILLATE OF TURKMEN PETROLEUMS -U-
AUTHOR--CHVERTKIN, A.L., TIMERKHANOV, R.V., SEDUNOV, YU.P., SIDORIN, V.F.
COUNTRY OF INFO--USSR
SOURCE--NEFTPERERAB. NEFTEKHIM. (MOSCOW,) 1970, (1) 1-4
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY, PROPULSION AND
FUELS
TOPIC TAGS--CATALYTIC CRACKING, PETROLEUM DEPOSIT, FLUIDIZED BED, GASOLINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/1139
CIRC ACCESSION NO--AP0107628
STEP NO--UR/0318/70/000/001/0001/0004
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107628

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OPERATION OF A FLUIDIZED BED CATALYTIC CRACKING INSTALLATION, DIFFERING FROM STD. ONLY IN THE ABSENCE OF A GAS DESULFURIZER, IS DESCRIBED. THE DISTILLATE LEAD, B. 350-500DEGREES, GAVE 0.25PERCENT COKE INSTEAD OF THE 0.1PERCENT DESIGN VALUE. AFTER 2 MONTH'S OPERATION, THE ACTIVITY OF THE CATALYST DECREASED TO 21-22 AND THE GASOLINE YIELD TO 26 WT. PERCENT, THE TEMP. IN THE REACTION ZONE INCREASING TO 485-490DEGREES INSTEAD OF TO 470DEGREES. THE REGENERATION OF THE CATALYST WAS IMPROVED, REDUCING ITS COKE CONTENT TO 0.1-0.2 INSTEAD 0.7-0.9PERCENT. BY IMPROVING THE RECOVERY BOILER, THE TEMP. OF THE CHIMNEY GASES WAS REDUCED FROM 400 TO 240DEGREES.

UNCLASSIFIED

USSR

UDC 547.245 + 543.422.4

D'YAKOV, V. M., VORONKOV, M. G., SIDORKIN, V. F., D'YAKOVA, T. L., and
ORLOV, N. F., Irkutsk Institute of Organic Chemistry, Siberian Branch of
the Academy of Sciences USSR

"PMR Spectra and the Structure of Trialkylsilyl Esters of Aroylphosphonic
Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1535-1539

Abstract: PMR spectra of bis(triethylsilyl)aroylphosphonates --
 $p\text{-XC}_6\text{H}_4\text{COP(=O)[OSi(C}_2\text{H}_5)_3]_2$ -- were studied. The data obtained from the
PMR and IR-spectral analyses were compared with the calculated results
of the distribution of electronic density by the method of SSP MO LKAO
(PPP). No satisfactory correlation was observed between the chemical
shifts of aromatic protons and the Hammett σ -constants in the investigated
series of compounds. Anomalous behavior was noted for p-halogen substi-
tuted derivatives for which a mechanism has been proposed for the reaction
of the halogen substituent with the reactive center.

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USSR

UDC 577.1:615.7/9

SIDORKIN, V. I., STARKOVA, Z. A., NOVIKOVA, F. I., KAPITUL'SKAYA, T. S.

"Toxicology of the Flotation Agent IMD-10"

Tr. Tsentr. n.-i. i proyekt.-konstrukt. in-ta profilakt. pnevmokoniozov i tekhn. bezopasn. (Works of the Central Research and Design and Construction Institute for the Prevention of Pneumonconiosis and Accidents), 1972, No 7, pp 75-77 (from RZh-Biologicheskaya Khimiya, No 17, Sep 73, Abstract No 17 F1932)

Translation: The new flotation agent IMD-10 is a highly toxic local irritant. After entering the bloodstream it attacks the viscera. It has cumulative properties.

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USSR

KAPITUL'SKAYA, T. S., SIDORKIN, V. I., NOVIKOVA, F. I., STARKOVA, Z. A.

"Toxicity of Allylithiuronium Chloride"

Tr. Tsentr. n.-i. i proyekt.-konstrukt. in-ta profilakt. pnevmokoniozov. i tekhn. bezopasn. (Works of the Scientific Research and Project Design Center of the Institute for Prevention of Pneumokonioses and Technical Safety), 1972, vyp. 7, pp 65-67 (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya, No 18, 25 September 1973, abstract No 18F1728)

Translation: A new fluorine-containing reagent, allylithiuronium chloride, has a low toxicity but has a local irritating effect, and when introduced into the organism over a long period of time, even in small doses, results in a general poisoning.

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USSR

UDC 621.378.9:539.293:535

LISITSA, M.P., SIDORKO, P.I., MOZOL', P.YE., VITRIKHOVSKIY, N.I.

"Two-Photon Absorption In $\text{CdS}_x\text{Se}_{1-x}$ Single Crystals"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), 1972, pp 53-57

Abstract: The effect of component composition of two-photon absorption in $\text{CdS}_x\text{Se}_{1-x}$ single crystals is investigated over a wide range of concentrations of sulfur and selenium. The experimental equipment used in the work employs a ruby laser which generates single pulses with a 20 Mw power and a duration of 20 nano-sec. The anisotropy is determined of two-photon absorption and the restriction of intensity of the radiation passing through the specimen. The dependence is obtained of the coefficient of two-photon absorption on the width of the forbidden band of the crystals. The experimental data agree qualitatively with theory. It is shown that a superlinear increase of the two-photon absorption with a decrease in the width of the forbidden band leads to an increase in efficiency of the optical pumping of a semiconductor laser. 6 fig. 7 ref.
Received by editors, 21 June 1971; after revision, 27 Sept 1971.

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USSR

UDC: 621.396.9:527.629.78

SIDOROV, V. V., PLEUKHOV, A. N.

"On the Problem of Determining the Time Position of Pulses Reflected From Meteor Trails"

V sb. Meteor. rasprostr. radiovoln (Meteoric Propagation of Radio Waves -- collection of works), vyp. 7, Kazan', Kazan' University, 1970, pp 116-122 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12G98)

Translation: The authors note the need for using pulses with an amplitude considerably greater than the threshold amplitude in radar location of meteor trails using narrow-band receivers. The accuracy of determining the time position of pulses is analyzed. An example is given of calculation for a radar station with fixed pulse power. It is shown that high measurement accuracy can be assured with narrow passbands and correspondingly wide pulses if the delay is measured in the arrival of pulses reflected from meteor trails only for sufficiently strong reflections.

1/1

- 130 -

USSR

UDC: 681.327

SIDORKIN, Yu. G., VINAROV, G. S.

"Automatic Fluidic Reader"

Pnevmatich. Sredstva i Sistemy Upr. [Pneumatic Devices and Control Systems -- Collection of Works], Moscow, Nauka Press, 1970, pp 317-321 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B237, by T. Ya.)

Translation: A device based on fluidic elements is described for input of information from punched cards to a computer. The device operates with 80-column cards; reading is performed in the columns either automatically in the stepping mode or manually by pressing buttons. The device contains two main units: the reading unit and the card transport unit, the latter based on the card transport unit in a series-produced verifier, the K-80-6. The reading unit contains a set of "nozzle-receiver channel" elements; a jet of air passes freely through those elements corresponding to the holes in the card but is blocked at locations where there are no holes. It is possible to read a limited area of the field of the card. Three illustrations.

1/1

USSR

UDC 621.372.855

KOTOSONOV, N. V., IVANOV, V. N., SIDORKIN, A. F., ARTEMOV, K. S.

"Optically Controllable Semiconductor Waveguide Load"

Tr. Voronezh. un-ta (Works of Voronezh University), No 77, 1971, pp 11-18 (from
RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10B165)

Translation: The reflection of electromagnetic energy from a semiconductor-dielectric-metal structure was investigated theoretically. The relation of the reflected power to the conductance of the semiconductor material was obtained. The possibility of using this effect to create an optically controllable load for waveguide channels was demonstrated, and an experimental estimate of its parameters was made. There are 5 illustrations and a 2-entry bibliography.

1/1

SIDORKIN, A. S.

SO:JPRS 53658
22 July 71

UDC: 616-082.3/.6:658.3-052.22

ROUNDS CONDUCTED BY CHIEF PHYSICIANS

(Article by A. S. Sidorkin, candidate of medical sciences, head of the Special Administration of Therapeutic and Sanatorium Care, Main Administration of Public Health, Moscow Municipal Executive Committee; Moscow, Sovetskoye Zdravokhraneniye, Russian, No 6, 1971, submitted 2 December 1971, pp 46-48)

Rounds occupy a special place in the activities of a chief physician in a therapeutic institution. The roster of problems that the chief physician has to consider during rounds is regulated by the specifics of the institution and is closely related to its activities, and first of all to therapeutic, economic, and administrative activities.

Among these numerous and important problems, of prime importance are those pertaining to patient treatment, since they determine the purpose of the institution and its authority.

When reviewing the prescribed therapy, first of all its outcome and results should be of interest. These indices are always the object of special attention and they are the criteria for evaluation of the therapeutic process.

It is known that the therapeutic process is a collective concept. It includes prior treatment at the polyclinic and all organizational matters related to rendering extramural and hospital services to the patient.

Diagnostic errors, delayed identification of pathology, atypical course of illness, and refusal to be hospitalized are the most frequent causes of delayed hospitalization of a patient or delayed treatment.

The outcome of disease could be related to other than flaws in the work of a doctor or nurse. In some cases the patient is late in seeking medical care. In other cases, the delay is due to the distant location of the hospital or transportation problems.

In this connection there must be close contact between the hospital and extramural institutions with reference to indications for hospitalization, wrong diagnoses, and many other issues.

MEDICINE

USSR

UDC: 621.397.61

SIDORKIN, N. A., MAKAROV, Yu. S., MAYOROV, V. N., ZAYTSEV, G. N., KUDRYAV-
TSEV, V. A.

"A Stereoscopic Television Camera"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 3, Jan 71, Author's Certificate No 291377, Division H, filed 31 Mar 69,
published 6 Jan 71, p 162

Translation: This Author's Certificate introduces a stereoscopic television camera for inspection of wells, pipelines, etc. The device contains two television transmitting tubes, scanning devices, an optical system containing two identical reflecting truncated cones located on a single optical axis with the objective lenses, and a receiver. As a distinguishing feature of the patent, the unit is designed for more detailed inspection of individual sections of the surrounding space. Between each of the reflecting truncated cones and the transmitting camera lens is a flat mirror with a hinged device set at an angle to the optical axis of the objective lenses and connected by a rod and speed reducer to the focusing system of the objective lenses. The hinged device of the mirror is connected to an electrical interlock system which is coupled to the inverse stage of the scanning device.

1/1

- 126 -

SIDORKIN, V. I.

Industrial
Hygiene

50:3P85 54539

23 NOV 71

UDC: 616.314.13-039.21-02:546.16]-

SOME TRACE MINERAL ELEMENTS IN THE BLOOD OF PATIENTS SUFFERING FROM ENDEMIC FLUOROSIS

07:616.132.3-074

Article by V.I. SIDORKIN, V.I. SIDORKIN, K.G. KAR'YANOVA, Central Scientific Research and Construction Design Institute of Proprietary of Pneumomaterials and SSSR, Moscow, No 10, 1971, pp 77-80]

In the literature it has been mentioned that there is a similarity between the main pathogenic mechanisms of occupational and endemic fluorosis (R.D. Gabovitch; A.A. Zhvoronkov; Hauschild). However, occupational fluorosis is often less strictly specific because of the exposure of workers to other industrial factors (various types of dust and gas, noise, vibration, temperature fluctuations, etc.). From this point of view, endemic fluorosis has obvious advantages for investigations.

Endemic fluorosis, as we know, is encountered among the inhabitants of several regions of the Ashkharon Pamir, where the natural water has a considerable fluorine content (A.A. Akhmedov). Thus, according to the data of the Gouanyou and Epidemiology Station, the natural sources in the village of Gouanyou contain 2 mg/liter of fluorine, the level ranges in the last few years in Far'ev, and 2.6 to 3.4 mg/liter in Zyrva. Although for water brought in from elsewhere, the system of sanitary inspection is inadequate to rule out consumption of natural fluorinated water for drinking and household purposes.

Among the disorders related to fluorosis, disturbances in metabolism of some trace elements have not been investigated very much. It has been reported that fluorine has a disorganizing effect on calcium, magnesium, manganese, iron metabolism (A.V. Kozlov; Rich and Emschlag; Muller et al.), as well as an antagonism in the organism between fluorine and aluminum (Muller et al.). The high sensitivity of trace mineral metabolism (Stricker and Muller). The high sensitivity of trace mineral metabolism (Stricker and Muller) research in this direction.

The present report deals with the results of assaying cobalt, nickel, zinc, and barium in the blood of patients suffering from endemic fluorosis. We found no literature on this subject.

Coatings

USSR

UDC 621.791.92:669.016.25

SHADRICHEV, V. A., Doctor of Technical Sciences, and SIDORUKIN, V. I., Engineer, Northwestern Correspondence Polytechnical Institute

"Relative Wear Resistance and Running-In of Coatings Built Up in Carbon Dioxide"

Moscow, Svarochnoye Proizvodstvo, No 12, Dec 70, pp 30-32

Abstract: The article describes results of a study of the relative wear resistance and running-in of metal built up in carbon dioxide with three types of welding wire, viz. Sv-03G2S, Np-30KhGSA, and 2Kh13. The deposit specimens used were cylindrical rods 38 mm in diameter and 150 mm long, made of standardized steel 45. The investigations were conducted under conditions close to boundary friction. The running-in mate was a gray iron block (hardness HV 170) of the chemical composition (in percentages) 2.9 C, 0.4 Mn, 2.74 Si, 0.608 Ni, 0.149 P, 0.072 S, 0.487 Cr. Serving as the standard for comparing the wear resistance of the built-up specimens were rollers made of steel 45 and induc-

USSR

SHADRICHEV, V. A., and SIDORKIN, V. I., Svarochnoye Proizvodstvo, No 12, Dec '70, pp 30-32

tion-hardened to HRC 56-62. The structure of the deposited metal was studied microscopically before the wear test of the coatings, and the friction surface of the rollers was photographed afterwards.

The results indicate that specimens built-up with 2Khl3 wire have the greatest wear resistance and those built-up with Sv-C8G2S the least. Standard specimens with the structure of martensite and high initial microhardness and surface purity values showed minimal wear. Of the metal coatings the least wear was found in specimens built-up with 2Khl3, which is due to structural features and high initial microhardness and surface purity values as compared to the other deposits. Most coatings displayed a new microgeometry as a result of running-in. There was no change in the microgeometry of induction-hardened steel 45 and steel built-up with 2Khl3 (i. e., materials with high microhardness and surface purity values). The greatest change

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- 5 -

USSR.

SHADRICHEV, V. A., and SIDORKIN, V. I., Svarochnoye Proizvodstvo, No 12, Dec 70, pp 30-32.

in surface purity during running-in was found in specimens built-up with Sv-08G2S. Each type of coating was found to have its own optimum surface purity after running-in, which in many respects determines subsequent wear resistance. Running-in also changes the microhardness of the coatings. The reduced microhardness of the standard specimens and specimens built-up with Np-30KhGSA with subsequent induction hardening is due to structural transformations in the thin surface layers under the action of the high temperatures occurring on the contacting areas during friction. There is almost no change in the microhardness of specimens built-up with 2Kh13 due to the high heat resistance of steels containing at least 12 percent chromium. There is somewhat of an increase in the microhardness of coatings built-up with Sv-08G2S and Np-30KhGSA without induction hardening, due to surface strengthening as a result of cold hardening.

3/3

USSR

YELIMELEKH, I. M., and SIDORKIN, YU. G.

Struynaya Avtomatika (Pnevmonika) (Jet Automation (Pneumatics)), Leningrad, "Lenizdat," 1972, 211 pp, Annotation p 2, Table of Contents pp 210-211

Translation of Annotation and Table of Contents: The book sets forth the basic principles of jet pneumoautomation (pneumatics) -- a new automatic control technology, which in many cases has significant advantages over electromechanical, electronic, and especially pneumatic (with moving mechanical parts) technology. Examples are given of the use of pneumatics in various sectors of industry.

The book is intended for a wide range of engineering-and-technical and scientific workers occupied with problems in the development, planning, and use of new automation hardware, as well as students in the respective specialties of secondary and higher technical educational institutions.

USSR

YELIMELEKH, I. M., and SIDORKIN, YU. G., Struynaya Avtomatika (Pnevmonika),
Leningrad, "Lenizdat," 1972

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- 10 -

USSR

YELIMELEKH, I. M., and SIDORKIN, YU. G., Struynaya Avtomatika (Pnevmonika), Leningrad, "Lenizdat," 1972

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1. Basic Principles of the Algebra of Logic.....	40
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3. Basic Evaluation Criteria for Fluid-Jet Logic Circuits.....	50
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5. General Methodology for Construction of Fluid-Jet Discrete Circuits.....	53
Chapter V. TRANSMISSION OF PRESSURE SIGNALS OVER COMMUNICATION CHANNELS.....	59

3/6

USSR

UDC: 621.311:681.142.2

KIZHNER, S. I., MANUSOV, V. Z., SIDORKIN, Yu. M., Novosibirsk Electrical Engineering Institute

"An ALGOL Program for Calculating the Steady-State Conditions of Electric Systems by the Method of Loop Currents"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Tekhnicheskikh Nauk, vyp. 3, No 13(193), Oct 71, pp 96-101

Abstract: Steady-state conditions in electric systems are calculated by splitting up the closed system into loops where the current divides. An algorithm is proposed for handling the problem on a digital computer using ODRA-ALGOL and ALPHA algorithmic languages for the description. The solution algorithm is presented in matrix form, and a block diagram of the program for calculation is given. A modified program can handle analysis of up to a total of 150 loops and junctions on the ODRA digital computer in 10-15 minutes.

1/1

1/2 019
TITLE--ABSORPTION OF AMMONIA FROM UREA PRODUCTION WASTE GASES -U-
UNCLASSIFIED
AUTHOR--(05)--STRIZHEVSKIY, I.I., ZAKAZNOV, V.F., LEBEDEV, V.V., SIDORINA,
I.YU., MELNIKOV, B.P.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 262,102
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOYARNYE ZNAKI 1970,
DATE PUBLISHED--26JAN70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--AMMONIA, UREA PRODUCTION, GAS ABSORPTION, FLAME EXTINCTION,
CHEMICAL PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/1743
CIRC ACCESSION NO--AA0136984
STEP NO--UR/0482/70/000/000/0000/0000
UNCLASSIFIED

2/2 019

CIRC ACCESSION NO--AA0136984
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. NH SUB3 IS ADSORBED FROM WASTE GASES CONTG. A COMBUSTIBLE H-O MIXT. BY WASHING OFF NH SUB3 UNDER PRESSURE IN AN ABSORBER WITH SIMULTANEOUS NEUTRALIZATION OF THE REMAINING DANGEROUSLY EXPLOSIVE MIXT. NEUTRALIZATION IS CARRIED OUT BY FILLING THE ENTIRE VOL. OF THE ABSORBER WITH A GRANULATED FILLING WITH DIMENSIONS OF FLAME EXTINGUISHING CANALS THAT SIGNIFICANTLY INCREASE THE CRIT. DIAMS. OF FLAME EXTINGUISHING IN CONCRETE CONDITIONS. A RASCHIG RING WITH DIAM. SMALLER THAN OR EQUAL TO 10 MM UNDER INITIAL ATM. PRESSURE IN THE ABSORBER OR A CORUNDUM FRACTION OF 1-2 MM UNDER AN INITIAL PRESSURE OF SMALLER THAN OR EQUAL TO 18 ATM IN THE ABSORBER IS USED AS THE GRANULATED FILLING. FACILITY: STATE SCIENTIFIC RESEARCH AND DESIGN INSTITUTE OF THE NITROGEN INDUSTRY.

UNCLASSIFIED

Steels

USSR

UDC 6 69.14.018.8

BABAKOV, A. A., POSYSAYEVA, L. I., PETROVSKAYA, V. A., and
SIDORKINA, YU. S., Central Scientific Research Institute of
Ferrous Metallurgy imeni I. P. Bardin

"New High-Alloy Corrosion-Resistant Steel Type 000Kh21N2nM4B"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr 71, pp 99-103

Abstract: Experimental data are presented on the properties of the new 000Kh21N2LM4B steel, designed for the manufacture of equipment for the production of double superphosphate by extraction phosphoric acid containing fluoride compounds. The chemical composition and mechanical properties of the steel are presented, as well as certain data on the corrosion resistance of the steel and its physical properties. The chemical composition is (percent):

1/2

USSR

BABAKOV, A. A., et al., Zashchita Metallov, Vol 7, No 2, Mar-Apr
71, pp 99-103

C	Mn	Si	P	S	Cr	Ni	Mo	Nb
0.03	Not Over 0.6	0.6	0.03	0.02	20-22	20-22	3,4-3.7	% CX15 up to 0.8

The steel has high resistance to intercrystalline and knife-line corrosion.

2/2

- 64 -

1/2 023
TITLE--NEW COMPUTER -U- UNCLASSIFIED PROCESSING DATE--18SEP70
AUTHOR--SIDOROV, A.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, SOCIALIST INDUSTRY 5 APR 70, P 41
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--ELECTRONIC COMPUTER, COLD CATHODE TUBE, TRANSISTOR/(U)IRAN
ELECTRONIC COMPUTER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--1979/1332
CIRC ACCESSION NO--AN0047727
STEP NO--UR/0533/70/000/000/0004/0004
UNCLASSIFIED

2/2 023
CIRC ACCESSION NO--AN0047727 UNCLASSIFIED PROCESSING DATE--18SEP70
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE IKAN ELECTRONIC KEYBOARD
COMPUTER HAS BEEN ACCEPTED AND RECOMMENDED FOR SERIES PRODUCTION. ITS
ORIGINAL COMBINATION OF COLD CATHODE ION LAMPS AND TRANSISTORS WILL MAKE
IT CHEAPER TO PRODUCE AND TO RUN AND EASIER TO SERVICE THAN ITS
PREDECESSORS, LIKE THE ORBITA, IN THE SAME CLASS.

UNCLASSIFIED

B. Mathematical Statistics

USSR

BERNSHTEYN, A. V., SIDOROV, A. A.

"Estimate of Set of Mean Normal Population"

Teoriya Veroyatnostey i Ee Primeneniya [Theory of Probabilities and its Application], 1972, Vol 17, No 4, pp 768-773 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V186, by A. Bernshteyn).

Translation: The following problem is studied. Suppose $E = \{\xi_1, \dots, \xi_n\}$ is a set of n independent complex random quantities, the real and imaginary portions of which are independent and normal with identical unknown dispersion. Let A be the set of mean values of random quantities from E . Given are N independent observations of E : Z_1, \dots, Z_N . Each observation Z_i is a disordered set of N complex numbers, containing one realization of each random quantity from E . Basic assumption: for two given numbers $Z_i' \in Z_i$ and $Z_j'' \in Z_j$, belonging to different observations ($i \neq j$), it is unknown whether they are realizations of the same random quantity $\xi \in E$ or not. The problem

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USSR

Bernshteyn, A. V., Sidorov, A. A., Teoriya Veroyatnostey i Ego Primeneniya, 1972, Vol 17, No 4, pp 768-773.

is to use observations Z_1, \dots, Z_N to estimate the set of means A .

The solution to the problem is based on the following: let f be a vector of symmetrical homogeneous polynomials with order of homogeneity from one to n inclusively such that none of them can be expressed in the form of a polynomial by means of the others (this vector performs mutually unambiguous continuous mapping of the set of disordered populations of n complex numbers in n -dimensional complex space C^n). We utilize $f(Z_1), \dots, f(Z_N)$ to estimate vector $f(A)$, and if $\tilde{f}(A) = F(f(Z_1), \dots, f(Z_N))$ is an estimate of $f(A)$, we select as the estimate of $\tilde{A} = \{\tilde{a}_1, \dots, \tilde{a}_n\}$ of set A the solution of the system of equations

$$f(\tilde{A}) = F(f(Z_1), \dots, f(Z_N)).$$

This system always has a solution which is unique, with an accuracy to permutation of the elements of set \tilde{A} ; its solution is reduced to determination of the roots of an n th power polynomial.

2/3

USSR

Bernshteyn, A. V., Sidorov, A. A., *Teoriya Veroyatnostey i Ego Primeneniya*, 1972, Vol 17, No 4, pp 768-773.

This article studies a class of unbiased, consistent estimates $f(A)$ (where estimate A is also produced consistent in this sense); the properties of these estimates are studied and estimates are found which are optimal according to a certain criterion.

3/3

USSR

UDC: 621.165.1:532.5.031

S
SAMOYLOVICH, G. S., NITUSOV, V. V., SIDOROV, A. A., Moscow

"Estimation of Aerodynamic Damping of Oscillations of Turbine Blades"

Kiev, Problemy Prochnosti, No 9, 1970, pp 98-100

Abstract: Due to difficulties involved in testing, there is considerable interest in determination of the aerodynamic damping coefficient of turbine blades by calculation. A formula for the unknown perturbed velocity at points along the blade profile presented in an earlier work is analyzed. It is determined that profile displacement can be very significant in many cases.

1/1

- 154 -

TITLE--STRUCTURAL CHANGES IN CARBON MATERIAL DURING COMBUSTION DETERMINED
BY AN EPR METHOD -U-
AUTHOR--SIDOROV, A.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. TVERD. 1970, (1) 61-5
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--CARBON PRODUCT, COAL, EPR SPECTRUM, SPECTROMETER,
COMBUSTION/(UI)RE1301 RADIOSPECTROMETER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/0484
CIRC ACCESSION NO--AP0107089
STEP NO--UR/0467/70/000/001/0061/0065
UNCLASSIFIED

017
CIRC ACCESSION NO--AP0107089
ABSTRACT/EXTRACT--(U) GP-0-
DEPOSIT, SEMICOKE PREPD. BY HEATING THE BROWN COAL AT 3DEGREES-MIN TO
500DEGREES, AND KUZNETSK COAL OF THE SS GRADE WERE EXAMD. THE SAMPLES
(PARTICLE SIZE 127 MU) WERE BURNED TO DIFFERENT COMBUSTION DEGREES IN A
GRAPHITE TUBE, ELEC. HEATED TO 1300 AND 500DEGREES, RESP. FOR THE COAL
AND SEMI COKE. THE RESIDUE WAS COLLECTED AND REFRIGERATED. SAMPLES
(10 G) OF THE RESIDUES WERE EVACUATED AT 10 PRIME NEGATIVE TORR AND
110DEGREES OVER 2 HR, AND SEALED IN 3 MM DIAM. AMPULS, AND THEIR EPR
SPECTRA DETD. WITH THE RE-1301 RADIOSPECTROMETER. THE INTENSITY OF THE
EPR SIGNAL IS PLOTTED AGAINST THE DEGREE OF COMBUSTION. A MAX. WAS
OBSD. AT 50 AND 40PERCENT COMBUSTION, RESP. OF THE BROWN AND SS COALS.
CHANGES IN THE EPR SPECTRA DURING THE HIGH TEMP. COMBUSTION ARE DUE
CHIEFLY TO THERMAL EFFECTS, WHILE THE COMBUSTION OF SEMI COKE AT LOW
TEMP. (SMALLER THAN 500DEGREES) RESULTED IN A DECREASE OF THE ACTIVE
CENTERS CONCN. WITHOUT NOTICABLE STRUCTURE CHANGES.

UNCLASSIFIED

PROCESSING DATE--02OCT70

UNCLASSIFIED

USSR

ZAKHAROV, A. V., SIDOROV, A. B.

"Devices for Investigating the Time Dependence of the Strength of Glass and Polymer Fibers in a Vacuum and Various Media"

Moscow, Zavodskaya Laboratoriya, Vol XXXVII, No 4, 1971, pp 491-492

Abstract: A device developed at the Moscow State Pedagogical Institute imeni Lenin to study the life of glass fibers is introduced. This device permits 20 samples of glass and polymer fibers of different length (from 1 to 100 mm) to be tested simultaneously under different static loads in a vacuum and various inert media (helium, argon, nitrogen, and so on) and also in the atmosphere. Differences between the vacuum version which also may be used for testing in inert media and the version for testing in the atmosphere are pointed out. A graph is presented showing the time dependence of the strength of alumoborosilicate glass fibers 10 microns in diameter and 10 mm long in the atmosphere determined by the device.

1/1

- 157 -

USSR

ZUBOV, E.N. and SIDOROV, A.F.

UDC: 533.6.011

"On Solution of a Boundary Problem for Transient Space Flow of Gas and Propagation of Weak Spherical Shock Waves"

Novosibirsk, Sb. Chisl. Metody Mekh. Splosh. Sredy (Symposium of Numerical Methods in Continuum Mechanics), 1972, Vol 3, No 3, pp 32-50 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2B156 by M. P. Mikhaylova)

Translation: Transient motion in space of gas displaced by a piston is analyzed. It is assumed that at the initial instant the velocity and acceleration of the piston are zero and the gas flow is potential. In solving the problem the authors transform the potential equation, introducing first the velocity components and then the spherical coordinates. The possibility of transition to physical space is investigated next. The solution is in a form of series. The motion with spherical symmetry is analyzed in detail. The asymptotic law of weak spherical shock wave damping is established.

1/1

SIDOROV, A. I.

59208
6.73

روما

X-12a. AUTOALLOYING IN THE PROCESS OF EPITAXIAL GROWTH OF SILICON ON SUBSTRATES WITH A THIN LAYER ALLOYED WITH ARSENIC

Article by A. V. Rodionov, A. I. Sidorov, N. I. Yurushkin, Moscow; Novosibirsk, 111 Stomolun po Prokhorovskaya Kozlovskaya i Shtetna Poluprovodnikov Katalizator 2 Plenum, Kuznetsov, 12-17 June 1972, p. 120.

This paper was devoted to a study of autoionizing in the process of epiclinal growth of silicon on substrates with a hidden layer of arsenic.

It is demonstrated that the transport of arsenic from the hidden layer introduces a significant contribution into the level of allowing the element Intensity in the direction of flow of the vapor-gas mixture.

Results are presented from a study of the effect of the temperature of calcination on the intensity of the arsenic emission with varying the content of arsenic in the sample.

located in direct proximity to the plasma with a continuous diffusion layer of the n-type alloyed with arsenic.

The possible mechanism of autocatalyzing of the epitaxial layer is discussed. Means of limiting transport of the admixture in the technological process with epitaxial growth of silicon are proposed.

022

UNCLASSIFIED

PROCESSING DATE--16OCT70
ON THE BASIS OF RESULTS

TITLE--ALLOYING OF THE HIGHER MANGANESE SILICIDE
OF MICROPROBE ANALYSIS -U-

AUTHOR--(04)-NIKITIN, E.N., SIDOROV, A.F., TARASOV, V.I., ZASLAVSKIY, A.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER 1970, 6(3), 604-5

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MANGANESE COMPOUND, SILICIDE, SEMICONDUCTOR MATERIAL, BORON
CONTAINING ALLOY, ALUMINUM CONTAINING ALLOY, GERMANIUM COMPOUND,
ELECTRON MICROPROBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0827

CIRC ACCESSION NO--AP0118005

STEP NO--UR/0363/70/006/003/0604/0605

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118005

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALLOYED SAMPLES WERE CRYSTD. IN QUARTZ AMPULS BY THE BRIDGMAN METHOD AT A CRYSTN. RATE OF 1 CM-HR. DURING THE CRYSTN. OF LIQ. OF COMPN. MNSI SUB1.7 GE SUB0.03, ONLY PARTIAL DISSOLUTION OF GE IN MN SUB11 SI SUB19 OCCURS. THE EXCESS GE FORMS A UNIFORM IMPURITH IN THE FORM OF A SI-GE SOLID SOLN. THE SOLY. OF GE IN MN SUB11 SI SUB19 IS SIMILAR TO 1.8 WT. PERCENT. THE SUBSTITUTIONAL SOLID SOLN. FORMED HAS THE COMPN. MNSI SUB1.715 GE SUB0.015. THE SUBSTITUTION OF A PART OF SI BY GE SHOULD NOT BE ACCOMPANIED BY A CHANGE IN ELEC. COND.; HOWEVER, A SLIGHT INCREASE IN ELEC. COND. OCCURS, WITH THE THERMAL EMF. REMAINING UNCHANGED. THIS INCREASE IN ELEC. COND. CAN THEN BE EXPLAINED BY INCREASED MOBILITY, WHICH IS CHARACTERISTIC FOR SEMICONDUCTOR MATERIALS WITH A DEFECT STRUCTURE. UPON ALLOYING MN SUB11 SI SUB19 WITH B, THE PPTN. OUT OF A CHEM. COMPD. OF THE COMPN. MNB AND OF FREE SI WAS OBSD. THE HIGH M.P. AND THE REGULAR LINEAR OUTLINES OF BOTH PHASES DISTINGUISHED THESE CRYSTALS FROM A EUTECTIC MIXT. THE SOLY. OF MNB AT ROOM TEMP. IS SMALLER THAN 0.6 WT. PERCENT. ALLOYING WITH B INCREASES THE CARRIER CONCN. WITHOUT NOTICEABLY DECREASING THE MOBILITY. THE DISSOLVED AL CONTENT IN MN SUB11 SI SUB19 ALONG THE LENGTH OF THE BOULE VARIED. IN THE PRESENCE OF GE, THE SOLY. OF AL AND B IN MN SUB11 S SUB19 INCREASE AT LEAST BY ONE ORDER OF MAGNITUDE. FROM ELEC. PROPERTY MEASUREMENTS, THE SAMPLES ALLOYED WITH B AND AL ARE CHARACTERIZED BY INCREASED ELEC. COND. AT HIGH TEMPS. AS COMPARED TO THE PURE MATERIAL. FACILITY: INST. POLUPROVOO., LENINGRAD, USSR.

UNCLASSIFIED

026

UNCLASSIFIED

PROCESSING DATE--18SEPT0

TITLE--THE DIAGNOSIS AND OPERATIVE TREATMENT OF DUODENOCOLONIC FISTULAS IN
PEPTIC ULCER AND CANCER OF THE STOMACH -U-
AUTHOR--(04)-KOZHEVNIKOV, A.I., KOMAROV, A.S., SIDOROV, A.I., BARANOV,
YU.F.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 4, PP 37-40

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DUODENUM, COLON, DIGESTIVE SYSTEM DISEASE, CANCER, EBIN, LARGE
INTESTINE, SURGERY, STOMACH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1239

CIRC ACCESSION NO--AP0054134

STEP NO--UR/0531/70/000/004/0037/0040

UNCLASSIFIED

020
CIRC ACCESSION NO--AP0054134
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT. THE AUTHORS COMMIT TO PAPER FIVE OBSERVATIONS OVER PATIENTS WITH DUODENOCOLONIC FISTULAS. IN FOUR PATIENTS THE FISTULA DEVELOPED AS THE RESULT OF DUODENAL PEPTIC ULCER, IN ONE PATIENT DUE TO INFILTRATION AND DISINTEGRATION OF THE CANCEROUS TUMOR OF THE COLON. DISAPPEARANCE OR MARKED WEAKENING OF THE PAIN SYNDROME, CONSTANT DIARRHEA, CACHEXIA, AND SOMETIMES AN INCREASED APPETITE, ARE THE MAIN MANIFESTATIONS OF FISTULA. THE SURGICAL TREATMENT OF DUODENOCOLONIC FISTULAS MAY CONSIST IN SEPARATION OF THE FISTULA, SUTURING OF OPENINGS IN THE HEPATIC ANGLE OF THE LARGE INTESTINE, DUODENUM AND RESECTION OF THE STOMACH. AS A PALLIATIVE OPERATION IN DUODENOCOLONIC FISTULA DUE TO CANCER, WHEN A RADICAL OPERATIVE INTERVENTION IS IMPOSSIBLE, ONE COULD EXCLUDE THE PYLORUS, ESTABLISH GASTROENTEROSTOMY WITH AN INTERINTESTINAL ANASTOMOSIS AND ILEOTRANSVERSOSTOMY.

UNCLASSIFIED

USSR

UDC 533.601.1

SIDOROV, A. F., Institute of Mathematics and Mechanics of the Ural Science Center, Academy of Sciences of the USSR

"On an Exact Method of Solving Certain Problems in the Theory of Three-Dimensional Supersonic Gas Flows"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 1, Mar/Apr 73, pp 62-65

Abstract: A method is proposed for constructing exact solutions of a non-linear equation for the velocity potential of steady-state of three-dimensional supersonic flows of a polytropic gas. The constructed class of flows is applied to solution of the problem of supersonic escape of a gas from an axisymmetric nozzle, and to the problem of supersonic flow around pointed axisymmetric bodies, assuming that the attached shock wave is weak.

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- 1 -

SIDOROV, A.N.

UNCLASSIFIED

SECTION V

501 SUDNETU RANOSPAC MEDICAL

Name: Institute of Photosynthesis, Puchchino

Description:

PC5-29
JUNE 71

(U) During this quarterly reporting period, one new article was located from the Institute of Photosynthesis in Puchchino. On the basis of this 1970 article on plant growth, it was possible to associate three new persons with the Institute: S. G. Khrushlova, V. L. Shmeleva, and Ye. F. Yegorova (34). To the present time it has not been possible to identify very many persons with the Institute; however, the complete listing of staff members identified to date is given below:

all-List of Photosynthesis

<u>Gavrilova, V. A.</u>	<u>Prokhorova, L. I.</u>
<u>Khrushlova, S. G.</u>	<u>Sadovnikova, N. D.</u>
<u>Ischelev, A. I.</u>	<u>Shmeleva, V. L.</u>
<u>Hakharov, A. D.</u>	<u>Sidorov, A. N.</u>
<u>Hol'yan, A. N.</u>	<u>Stukov, L. F.</u>
<u>Khin, Ye. N.</u>	<u>Stolovitskiy, Yu. N.</u>
<u>Olovyanichnikova, G. D.</u>	<u>Surovets, V. Z.</u>
<u>Popov, N. B.</u>	<u>Yegorova, Ye. F.</u>
	<u>Yevlinskoy, V. B.</u>

INCHI ACCIDENT

AA0040761

S

Sidorov, A. P.
UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

241094 CHROMATOGRAPH for gas impurities analysis, consisting of the enrichment column unit; measuring unit with a recording instrument; thermal conduction detector; recording potentiometer and a power pack with a control unit. The enrichment column unit comprises an electric motor with a drive electric heater; chromatographic column; a liquid nitrogen tank. This unit serves to enrich and separate the analysed impurities. The measurement unit records the isolated impurities, and the potentiometer records the analysis results.

Gas from the tested cylinder (10) flows through a reducing valve (11), input adjusting valve (12) and rotameter (13) to the detector comparator cell. The gas pressure is controlled by a pressure gauge at the reducing valve. Then the gas flows to the chromatographic column and from there to the detector working chamber and through the outlet control valve (14) escapes into the air. A gas meter can be placed after the outlet valve. The control valve (15) is used for blowing out. The

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residual pressure is controlled by the pressure gauge (16). All gas pipes are metal capillary tubes. Some of them are flexible.

The chromatographic column is in form of a coiled copper tube filled with a sorbent, e.g. with molecular sieves 13X. The column can be moved from a liquid nitrogen bath to a heater and back again. Thus a variable temperature field from -196 to 300°C moves along the sorbent layer.

2.1.64 as 873985/26-25. GENKIN, Yu. M. et alia:
EXPERIMENTAL FACTORY OF THE INST OF NATURAL GAS.
(12.8.69.) Bul 13/1.4.69. Class 421. Int. Cl. G 01n.

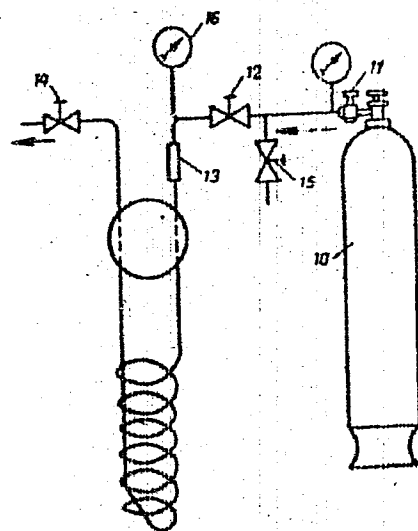
AUTHORS: Genkin, Yu. M.; Shevelev, B. P.; Sidorov, A. P.; Podol'skaya, Ye. V.; Maksimov, P. K.; and Estrin, V. N.

Opytnyy Zavod Vsesoyuznogo Nauchno - Issledovatel'skogo
Instituta Prirodnogo Gaza

2/2

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AA0040761



LD

3/3

19750453

Circuit Theory

USSR

UDC: 621.374.3:621.382.233.014.2

BOOK

SIDOROV, Aleksandr Sergeevich

TEORIYA I PROYEKTIROVANIYE NELINEYNYKH IMPUL'SNYKH SKHEM NA TUNNEL'NYKH DIODAKH (Theory and Design of Nonlinear Pulse Circuits Based on Tunnel Diodes), Moscow, "Sovetskoye Radio", 1971, 263 pp, illus, biblio, 16 000 Copies printed

The book is devoted to the theory and peculiarities of designing nonlinear tunnel-diode pulse circuits (TD-circuits).

The author studies single-diode and two-diode circuit modifications with linear and nonlinear (diode) supply circuits. A nonlinear electric model is used to describe the switching properties of the tunnel diode. The statistical current-voltage curve for a tunnel diode is approximated by a set of power functions which account for variations in the shape and technological scatter of parameters of the curve.

The stability indices of TD switching circuits are considered, and graph-analysis methods are given for calculating these indices. An investigation is made of the conditions and the nature of development of the transient processes which

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USSR

SIDOROV, A. S., TEORIYA I PROYEKTIROVANIYA Nelineynykh Impul'-snykh skhem na tunnel'nykh diodakh, Moscow, "Sov. Radio", 1971

arise in TD-circuits under the effect of very steep (stepwise) and linearly varying signals. Analytical estimates which are universal (for an extensive spectrum of trigger signals) are derived for the most important indices of the investigated processes. Singularities of self-excitation are considered as well as conditions of stabilization and the dynamic indices of self-excited oscillations in TD-circuits.

A study is made of the factors which limit the speed of TD-circuits; the effectiveness of a statistical estimate of limiting speed is demonstrated.

The particulars of interaction between a tunnel diode and a transistor are analyzed. Ideas are presented on synthesis of high-speed compact circuits based on negatrons of different types.

The book is written for specialists interested in problems in the theory, design and use of nonlinear pulse devices in measurement and computer technology, nuclear electronics, automation and radio engineering.

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USSR

SIDOROV, A. S., TEORIYA I PROYEKTIROVANIYE Nelineynykh Impul's-
nykh skhem na tunnel'nykh diodakh, Moscow, "Sov. Radio", 1971

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SIDOROV, A. S., TEORIYA I PROYEKTIROVANIYE Nelineynykh Impul's-
nykh skhem na tunnel'nykh diodakh, Moscow, "Sov. Radio", 1971

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References (110 titles)	257

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USSR

UDC 621.374.33(088.8)

SIDOROV, B. A. S

"Commutator Control Device"

USSR Author's Certificate No 250993, Filed 4 Oct 67, Published 30 Jan 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9G278P)

Translation: This author's certificate introduces a commutator control device with automatic shifting of the control pulse fronts. The device contains a master oscillator, a trigger calculating circuit and a coincidence circuit matrix. In order to obtain a shift of the front which is stable and regulated within broad limits and to exclude stray pulses at the output of the device, a delay line, a coincidence circuit and an OR gate are introduced. The delay line is included between the output of the master oscillator and the input of the calculation circuit, the output of the delay line is connected to one input of the coincidence circuit and the OR gate the other inputs of which are connected to the master oscillator, and the output of the OR gate is connected to the coincidence circuit matrix.

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Genetics

USSR

UDC 575

SIDOROV, B. N., and SOKOLOV, N. N., Doctors of Biological Sciences

"Genetic Recombination: The Mechanism of Exchange on the Cytological and Molecular Level"

Moscow, Priroda, No 4, 1970, pp 30-36

Abstract: The behavior of ring chromosomes in mitosis was studied in cells of *Crepis capillaris* treated with colchicine. Polyploids showed not an increase in the number of ring chromosomes, but an enlargement of chromosomes. Thus, all the material of chromosomes formed by reproduction enters into one ring chromosome, increasing its size. Such a structure is possible only by exchange between two ring chromatids, forming one common ring. The process of "break-binding" in chromatids, repeated several times, is evident. This confirms McClintock's position about the instability of ring chromosomes in *Zea*, and the subsequent exchange between the chromatids. The formation of ring chromosomes of increased size indicates a spontaneous exchange between the chromatids, confirming Taylor's autoradiographic results, and contradicting the theory of the "matrix" change. Exchange between two sister chromatids growing from the halves of the mother chromosome is also noted. This type of recombination cannot show any genetic differences. The behavior of ring chromosomes is very similar to that of the ring molecules of DNA in mitochondria observed by D. Vinograd. It was suggested that the exchange is a result of the physicochemical properties of DNA molecules.

1/2 025 UNCLASSIFIED
TITLE--MAPS AND DRAWING ON MICROFILMS -U- PROCESSING DATE--13NOV70
AUTHOR--(02)-MAKSIMOV, N.P., SIDOROV, F.V.
COUNTRY OF INFO--USSR
SOURCE--MAPS AND DRAWING ON MICROFILMS (MIKROFIL'MIROVANIYE KART I
CHERTEZHEY), MOSCOW, NEORA, 1970, 183 PP
DATE PUBLISHED-----70
SUBJECT AREAS--METHODS AND EQUIPMENT
TOPIC TAGS--HANDBOOK, MAPPING EQUIPMENT, MICROFILM, PHOTOSENSITIVITY,
PHOTOGRAPHIC EQUIPMENT, PHOTOGRAPHIC PROCESSING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1267 STEP NO--UR/0000/70/000/000/0001/0183
CIRC ACCESSION NO--AM0130257
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE---13NOV70

CIRC ACCESSION NO--AM0130257

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: INTRODUCTION
3. CHAPTER I BASIC PROBLEMS OF REPRODUCTION OF MAPS AND DRAWING ON
MICROFILMS 6. II CHARACTERISTICS OF MAPS AND DRAWING AS OBJECTS TO BE
RECORDED ON MICROFILMS 23. III SPECIFICATIONS FOR MICROPHOTOCOPIES 33.
IV EVALUATION OF QUALITY OF THE PHOTOGRAPHIC IMAGE 46. V
PHOTOSENSITIVE MATERIALS 70. VI EQUIPMENT FOR MICROFILMS REPRODUCTION
AND PROJECTOR READING EQUIPMENT 82. VII MAPS ON MICROFILMS 118. IX
PRODUCTION OF COPIES FROM MICROFILMS 151. X QUALITATIVE CONTROL,
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BIBLIOGRAPHY 178. THE BOOK DEALS WITH PRODUCTION AND UTILIZATION OF
MICROPHOTOCOPIES OF MAPS AND DRAWINGS... THE BOOK PRESENTS NEW METHODS
FOR EVALUATION OF QUALITY OF THE PHOTOGRAPH AND AN ANALYSIS OF
TECHNOLOGICAL PROCESSES IN MICROPHOTOREPRODUCTION OF MAPS AND DRAWINGS,
AS WELL AS PRODUCTION OF COPIES FROM MICROFILMS.

UNCLASSIFIED

USSR

UDC: 621.319.4

ZAYATS, V. K., SIDOROV, G. I., ALEKSANDROV, Yu. A., PALAGIN, V. A.

"An Installation for Testing Capacitors on Audio Frequencies"

Pribory i sistemy avtomatiki. Resp. mezhved. nauch.-tekhn. sb. (Devices and Systems for Automation. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 14, pp 45-48 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V330)

Translation: The authors describe an installation for reliability testing capacitors in the acoustic frequency range. The unit is a low-frequency power oscillator operating into a tank circuit whose capacitive element is a test group of capacitors. Test frequencies are 100, 200, 400, 500, 1,000, 2,500, 5,000 and 10,000 Hz. The maximum capacitance of the group of test capacitors is 10 μ F at a maximum voltage of 1,400 V on 100 Hz, and 210 V on 10,000 Hz. The installation can be used for long-term tests. Two illustrations, bibliography of two titles. Resumé.

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USSR

UDC: 518.5:681.3.06

SIDOROV, G. V.

"The Gauss-Seidel Method for Solving a System of Nonlinear Algebraic Equations"

V sb. Mashiny dlya inzh. raschetov (Machines for Engineering Calculations-- collection of works), vyp. 4, Kiev, 1971, pp 27-31 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V980)

[No abstract]

1/1

USSR :

UDC: 629.78.017.2

LEBEDEV, V. G., PROKHORENKO, V. I., SIDOROV, I. M.

"Determining the Orientation of a Rotation-Stabilized Artificial Satellite From Telemetric Data Sent by Magnetometers"

Moscow, Upr. dvizhushchimisya ob'yektami. Tr. IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik (Control of Moving Objects. Works of the Fourth All-Union Conference on Automatic Control. Tbilisi, 1968--collection of papers), 1972, pp 311-312 (from RZh-Raketostroyeniye, No 10, Oct 72, abstract No 10.41.63)

Translation: The authors consider the problem of determining the angular position of an artificial satellite stabilized by rotation with an angular velocity of more than 3 deg/s from data of magnetometric measurements sent over a telemetric channel. The method of determining the angular position of the rotating satellite is based on harmonic analysis of signals sent from the magnetometers. The parameters of orientation of the artificial satellite relative to an absolute coordinate system are determined on the basis of a comparison of the laws of variation in the average values of the amplitudes, frequencies and phases of the components of the vector of inten-

1/2

-USSR-

LEBEDEV, V. G. et al., Upr. dvizhushchimisya ob'yektov, Tr. IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik, 1972, pp 311-312

sity of the earth's magnetic field in projection on the associated axes of the artificial satellite with the corresponding characteristics of the isolated harmonic components of the signals. The proposed method enables determination of the angular position of a rotating satellite both in the mode of rotation and in the mode of "tumbling". Methods are presented for evaluating the systematic and total error in determining the angular position of a rotation-balanced satellite by the given method. Bibliography of 4 titles. Résumé.

2/2

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USSR UDC 619.611.9-022.6+636.1+636.2+636.4+636.52/.58

SOBKO, A. I.; SIDOROV, I. V.; SOKOLOV, L. N.; BELOKON, I. K.;
OVCHARENKO, I. V.

"Determination of the Optimum Dose of Foot-and-Mouth Disease
Saponin Aluminum Hydroxide Formol Vaccine for Swine"

Vladimir, V sb. Yashchur. T. 1 (Foot-and-Mouth Disease, Vol 1 --
Collection of Works), 1970, pp 69-71 (from RZh-58. Zhivotno-
vodstvo i Veterinariya, No 4, Apr 71, Abstract No 4.58.572 by
A. Musin)

Translation: Three experiments in swine immunization were con-
ducted with different variants and different doses of the vaccine.
Single immunization does not guarantee stable immunity. Double
administration of the same vaccine (20 and 40-50% immunizing
doses for guinea pigs) with an interval of 14 days) produced a
high level of immunity in 100% of the 6-10 month-old pigs.

1/1

USSR

UDC 536.46+532.517.4

BAYEV, V. K., KONSTANTINOVSKIY, V. A., and SIDOROV, I. V.

"The Mixing of Concurrent Streams in a Channel of Constant Cross Section in the Presence of a Recirculation Zone"

Novosibirsk, Fizika Goreniya i Vzryva, No 1, 1972, pp 70-76

Abstract: A description is given, as well as an attempt at generalization, of the results of an experimental investigation of the geometric dimensions of the recirculation zone, and the determination of concentrations along the axis, during the flow of concurrent coaxial streams in a channel of constant cross section, the areas of the stream cross sections being comparable, and with the passive stream situated along the channel axis. The obtained relationships may be used for a priori estimates, for example, of flame stabilization by means of recirculation zones originating during the flow of concurrent streams in a channel of constant cross section. 9 figures. 1 table. 6 references.

1/1

USSR

UDC 545.85

SIDOROV, L. N., BELOUSOV, V. I., and AKISHIN, P. A., Moscow State University
imeni M. V. Lomonosov

"Mass-Spectroscopic Study of Thermodynamic Properties of NaF-BeF₂ System.
VI. Temperature Dependence of Partial Pressures and Dissociation Enthalpy
of Complex Molecules"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, Vyp 12, 1971, pp 3007-3011

Abstract: Partial pressures of NaF, Na₂F₂, BeF₂, NaBeF₃, Na₂Be₂F₆, and Na₂BeF₄ in the NaF - BeF₂ system were determined as a function of temperature (up to 1106°K), with BeF₂ concentrations from 0-100%. Using the results obtained in previous work, the authors calculated the heat of vaporization of NaF and BeF₂ on the assumption that in the melt $\Delta \bar{S}_1 = 0$, and of NaBeF₃, Na₂Be₂F₆, and Na₂BeF₄ with the aid of Hess' law from the heat of appropriate gas-phase reactions. Gibbs' free energy, and the heat of formation of NaF - BeF₂ from liquid BeF₂ and solid NaF at 1106°K as well as the entropy, enthalpy, and Gibbs' free energy for nine gas-phase reactions involving the same complex molecules are also presented. The absolute energy values for NaBeF₃, Na₂BeF₄, and Na₂Be₂F₆ calculated in this work are $S_{1106}^\circ = 103.4 \pm 3$, 150.6 ± 5 , and 182.3 ± 8 , resp. The assumed structure of the molecules are also given. The experimental results are presented in 7 tables.

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USSR

UDC 541.11

BELOUSOV, V. I., SIDOROV, L. N., Department of Chemistry, Moscow State University imeni M.V. Lomonosov

"On the Melting Point of Beryllium Fluoride"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 1, Jan 70, pp 254-255

Abstract: The mass-spectrometric investigation of the pressure of saturated vapor of the system NaF-BeF₂ shows that during the isothermal evaporation of melts of the system NaF-BeF₂, which contain 90 mole % BeF₂, the intensity of all recorded ions remains constant over a period of several hours. From the obtained experimental data, 800±5° is accepted as the melting point of BeF₂.

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1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--MASS SPECTROMETRIC STUDY OF THERMODYNAMIC PROPERTIES OF SODIUM
FLUORIDE BARIUM FLUORIDE AND SODIUM FLUORIDE, MAGNESIUM FLUORIDE SYSTEMS
AUTHOR--(03)--BELOUSOV, V.I., SIDOROV, L.N., AKISHIN, P.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1) 263-4

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--MASS SPECTRUM, THERMODYNAMIC PROPERTY, SODIUM COMPOUND, BARIUM
FLUORIDE, MAGNESIUM FLUORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/0315

STEP NO--UR/0076/70/044/001/0263/0264

CIRC ACCESSION NO--AP0053300

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 022
CIRC ACCESSION NO--AP0053300

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MASS SPECTRA OF GASEOUS PHASES OVER NAF-BAF SUB2 AND NAF-MGF SUB2 SYSTEMS WERE STUDIED AT 1160-1450DEGREES, AND FOR THE COMPN. RANGES UP TO 90 WT. PERCENT BAF SUB2 AND 60 WT. PERCENT MGF SUB2. AT 1160-1170DEGREES, THE NA PRIME POSITIVE, NAF PRIME POSITIVE, NA SUB3 F SUB2 PRIME POSITIVE, BA PRIME POSITIVE, BAF PRIME POSITIVE, MG PRIME POSITIVE, AND MGF PRIME POSITIVE IONS WERE FORMED. THE OCCURRENCE OF NAMGF SUB2 PRIME POSITIVE WAS ALWAYS LESS THAN 0.001PERCENT WHEREAS HIGHER AMTS. OF NABAF SUB2 PRIME POSITIVE WERE OBSD. (IS LESS THAN 6PERCENT AT 1460DEGREES FOR THE SYSTEM WITH 90 WT. PERCENT BAF SUB2).

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--MASS SPECTROMETRIC STUDY OF THE THERMODYNAMIC PROPERTIES OF NAF AND
MF SUB3 BINARY SYSTEMS (M IS SCANDIUM, YTTRIUM, LANTHANUM). I.
AUTHOR--(021)-SHCHEREDIN, V.P., SIDOROV, L.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 514-17

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MASS SPECTRUM, SODIUM COMPOUND, SCANDIUM COMPOUND, YTTRIUM
COMPOUND, LANTHANUM COMPOUND, FLUORIDE COMPOUND

CONTROL MARKING--NO RESTRICTIONS.

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/0455

STEP NO--UR/0076/70/044/002/0514/0517

CIRC ACCESSION NO--AP0104068

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104068

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING THE METHOD OF ISOTHERMAL
EVAPN., MASS SPECTRA OF BINARY SYSTEMS OF NAF WITH SCF SUB3, YF SUB3 AND
LAF SUB3 CONTG. 8 OR 45, 50, AND 50 MOLE PERCENT MF SUB3, RESP., WERE
RECORDED AND INTERPRETED BY FINDING THE IONIC FLOW OF NA PRIME POSITIVE,
NAF PRIME POSITIVE, NA SUB2 F PRIME POSITIVE, NA SUB3 F SUB2 PRIME
POSITIVE, NAME SUB3 PRIME POSITIVE, MF SUB2 PRIME POSITIVE, NAF, NA SUB2
F SUB2, NA SUB3 F SUB3, MF SUB3, AND NAME SUB4 IN THESE SYSTEMS AT 1169
OR 1219, 1321, AND 1276DEGREESK, RESP. PARTIAL PRESSURES OF NAF, NA
SUB2 F SUB2, NA SUB3 F SUB3, MF SUB4, AND NAME SUB4 IN THE SYSTEMS ARE
TABULATED.

UNCLASSIFIED

Converters and Transducers

US3R

UDC: 621.374.387

~~SIDOROV, I. V.~~

"A Time-Amplitude Converter for the Nanosecond Range"

Moscow, Pribery i Tekhnika Eksperimenta, No 2, Mar/Apr 70, pp 111-114

Abstract: The author describes the circuit of a time-amplitude converter for the nanosecond range. The resolution time (width at half amplitude) for registration of gamma-gamma collisions from cobalt-60 is about 1.0 nsec for an exposure of 10^5 /sec in the 20-volt input pulse amplitude range for both channels. The drift of the time scale of the converter is about 0.4 nsec in 12.5 hours. The instrument was developed for measuring the masses and kinetic energies of fission fragments from their time of flight, particularly those having high alpha-radioactivity. The author thanks Ye. S. Pavlovskiy and P. V. Toropov for constructive criticism and assistance rendered in checking the parameters of the converter.

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Veterinary Medicine

USSR

UDC 636+576.8.094.29

KOVALENKO, Ya. R., SIDOROV, M. A., FESENKO, I. D., FEDOROV, Yu. N.

"Reactogenic and Immunogenic Properties of Cholera Virus Vaccine from the K Strain for Hogs Kept at High Ambient Temperature"

Moscow, Sel'skokhozyaystvennaya Biologiya, Vol 7, No 5, 1972, pp 759-762

Abstract: A study was made of the reactogenic and immunogenic properties of the cholera virus vaccine from the K strain for hogs kept at high ambient temperatures for the period of the adaptive and productive phases of immunogenesis. Under the conditions of high temperatures and humidity, gilts exhibit a standard stress reaction. The live virus vaccine from the K strain injected in these gilts causes a severe postvaccinal reaction, and some of them become sick and die exhibiting clinical and pathoanatomical symptoms characteristic of cholera. A stressed immunity develops in the gilts injected with the live virus vaccine by the fifth day.

A total of three experiments were performed over the course of 3 years on 92 gilts with a live weight from 22 to 45 kg. One group of pigs was kept under the customary conditions of the hoghouse (a temperature of 16-22°, a relative humidity of 75-85%, air movement at 0.1 m/sec, a carbon dioxide gas content of 0.22-0.23%, and an oxygen content of 20.8-20.85%); another group

USSR

KOVALENKO, Ya. R., et al., Sel'skokhozyaystvennaya Biologiya, Vol 1, No 5, 1972, pp 759-762

of the same age which had previously been kept under the same conditions was moved to the climate chamber 3 days before vaccination and for 7 days after injection of the vaccine they were kept in it 8 hours a day and then in the hoghouse. In the climate chamber at a level of 30 cm from the floor the temperature was maintained at 30-32°C with air circulation of 0.15 m/sec and a relative humidity of 75-90%. At night when the heaters were shut down the temperature dropped to 22-25°C for 5 hours, the relative humidity reached 95-100%, and the carbon dioxide gas concentration in the daytime did not exceed 0.25% and at night 0.32% with an oxygen content of 20.61 to 20.71%. Comparative data are tabulated for the different groups of gilts. As a result of the stressed state arising from the increased temperature and humidity, the phagocytic activity of the blood neutrophils of the pigs dropped, the synthesis of specific globulins was suppressed, and the overall resistance of the organism was lowered. Against this background, the reactogenic property of the live virus vaccine from the lapinized K strain is intensified, and individual series of this vaccine caused postvaccinal cholera and death in the animals. The intensified proliferation of the cells in the lymphatic series with intense synthesis of ribonucleic acid caused by the high temperatures insures rapid

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USSR

KOVALENKO, Ya. R., et al., Sel'skokhozyaystvennaya Biologiya, Vol 1, No 5, 1972, pp 759-762

penetration and reproduction of the lapinized cholera virus in the organism of the gilts. This promotes the manifestation of the reactogenic property and the creation of a stressed immunity.

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Veterinary Medicine

USSR

UDC 636.4:619

SIDOROV, M. A., Doctor of Veterinary Medicine, All-Union Institute of Experimental Veterinary Science

"Cultures of Leukocytes From Cells of Peritoneal Exudate and Their Susceptibility to the Virus of African Swine Fever"

Moscow, Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokhozyaystvennykh Nauk imeni V. I. Lenina, No 12, 1971, pp 29-31

Abstract: Existing methods of preparation of leukocyte cultures from pigs' blood and bone marrow are both difficult to perform and not very susceptible to the virus of African swine fever. Tests were conducted to obtain cells cultures from peritoneal exudate of piglets aged 2 to 3 months. A detailed description of the method of culture preparation is given and results of analysis and comparison of its effectiveness to that of cultures of leukocytes from blood and bone marrow. While it appeared that the peritoneal culture was somewhat inferior in its susceptibility to the virus of African swine fever to those from blood or bone marrow, these cultures could be used for virus detection in pathological materials during the first three days after the beginning of incubation. Intensity of replication of the virus in leukocytes cultures and its accumulation in the culture fluid depended on the concentration of susceptible cells.

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USSR

SIDOROV, M. A., Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokhozyaystvennykh Nauk imeni V. I. Lenina, No 12, 1971, pp 29-31
tible in the culture cells.

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USSR

UDC 636:612

KOVALENKO, Ya. R., SIDOROV, M. A., TATARINTSEV, N. T., FESENKO, I. D., and SHEGIDEVICH, E. A., All Union Institute of Experimental Veterinary Science, Moscow

"The Effect of Elevated Temperature and Humidity of the Environment on Immunogenesis of Swine Infected With Erysipelas"

Moscow, Sel'skokhozyaystvennaya Biologiya, Vol 6, No 4, 1971, pp 591-596

Abstract: Two series of tests were carried out on swine of various weights. One group was kept in normal pigsty conditions at 16-20°C and relative humidity of 75-80%. The other group of similar swine were kept for three days prior to vaccination and for seven days thereafter in a climatic chamber, then transferred to the pigsty. Electric heaters, operating for eight hours daily, produced a temperature of up to 30-32°C, the air was circulated by ventilators, at a velocity of 0.15 m/sec, with a relative humidity of 75-90%. At night the temperature dropped to 22-25°C with humidity of 95-100%. Eighty-three piglets were used in two tests, vaccinated with live erysipelas vaccine strain VR-2. It was demonstrated that in swine kept under conditions of elevated temperature and humidity, the synthesis of protein fractions undergoes a change, the

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KOVALENKO, Ya., R., et al, Sel'skokhozyaystvennaya Biologiya, Vol 6, No 4, 1971, pp 591-595

phagocytic activity of the blood neutrophils is markedly depressed, nucleic acid synthesis is altered, and the transformation of the blastic elements of lymph tissue into plasmatic ones is retarded. All of this affects the synthesis of specific antibodies. It was determined that elevated temperature and humidity, which produce significant hematological, cytological, and biochemical shifts in the body of swine, are factors which prevent the formation of intense postvaccinal immunity to erysipelas when live VR-2 strain vaccine is used. The surrounding medium and microclimate can have a negative effect on the condition of the swine as stress factors, or be direct causes of disease. Therefore, when measures are being carried out for eradication of swine erysipelas, the effectiveness of vaccination of piglets kept under conditions of elevated temperature and humidity may decline markedly and many of the vaccinated animals fail to acquire any stable immunity.

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USSR

UDC 636+576.8.093.2

KOVALENKO, YA. R., SIDOROV, M. A., TATARINSEV, N. T., and YABLON-SKAYA, I. YA., All-Union Institute of Experimental Veterinary Medicine

"Environmental Factors and Immunobiological Reactivity in Animals"

Moscow, Sel'Skokhozyaystvennaya Biologiya, No 2, 1970, pp 235-244

Abstract: Experiments with swine, mice and rabbits showed that sudden changes in environmental factors (exposure to cold, heat, or sun's rays without preliminary adaptation) and alteration of the diet (reduction of the normal protein content) induced a stress reaction which resulted in a lowering of general resistance and increased susceptibility to erysipelas, cholera, and typhoid. Sharp changes in temperature, maintenance conditions, or diet weakened, prevented, or delayed the development of immunity in vaccinated animals. The mechanism of action of the physical stressors differs from that of hypoproteinemia. The physical stressors stimulate the body's defensive forces, giving rise to the general adaptation syndrome. This weakens the metabolic processes and exhausts the physiological reserves, including the function of the immunocompetent

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KOVALENKO, YA. R., et al., Moscow, Gel'skokhozyaystvennaya Biologiya, No 2, 1970, pp 235-244

organs, so that the reaction to antigen is not as strong as under ordinary vaccination conditions. With a protein deficiency, the dissimilation process does not take place normally, and the latent energy of cells is not converted to the kinetic energy needed for the proliferation and transformation of lymphoid into plasmatic cells.

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Luminescence

USSR

UDC 661.143:546.431'821'185(088.8)

GUGEL', B. M., LODYGIN, N. A., GOLUBEV, I. F., KHIZHA, V. S., BLYAKHMAN, E. A., KUTSENKO, N. A., SIDOROV, M. D., ZVYAGIN, V. B., VAKHRAMOV, V. P., AGAPOV, V. I., GARKUSHA, V. A., KHUSAINOVA, R. S.

"Phosphor for Low-Pressure Luminescent Tubes"

USSR Author's Certificate No 336342, filed 19 May 70, published 22 May 72 (from RZh-Khimiya, No 2(II), Feb 73, Abstract No 2L148P)

Translation: In order to increase the light yield of the tubes, the proposed phosphor includes the following: barium-titanium phosphate, calcium halophosphate, strontium and magnesium orthophosphate and magnesium fluorogermanate. The barium-titanium phosphate, the calcium halophosphate, the strontium orthophosphate, magnesium orthophosphate and magnesium fluorogermanate are introduced in the following proportions by weight: 4-6:2.5-4:0.4-0.8:0.13-0.25 respectively. As an example, let us take weighed samples of 4.36 kg of barium-titanium phosphate, 3.84 kg of calcium halophosphate, 0.40 kg of magnesium-strontium orthophosphate and 0.24 kg of magnesium fluorogermanate. Put them in a porcelain cylinder and mix for 1 hour. A suspension is prepared from the mixture obtained and it is applied to the tubes.

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USSR

UDC 621.787+539.4.014.13:669.295

SIDOROV, N. F., and SURAY, P. Ya., Kuybyshev

"Development Characteristics of Residual Stresses in Titanium Alloys by Cutting and Plastic Deformation"

Kiyev, Problemy Prochnosti, No. 9, Sep 71, pp 99--102

Abstract : Experimental investigation results are presented of the effect of the phase composition and the structure of the two-phase titanium alloys VT8 and VT9 on the level of residual stresses after grinding and plastic surface deformation. It is demonstrated that on surface layers of the alloys by grinding, vibrational barrel finishing, pneumatic- and hydraulic shot-stream processing, phase transformations take place which affect considerably the level of residual stresses caused by grinding or plastic surface deformation. In surface hardening by methods of vibrational barrel finishing and hydraulic shot-stream processing, the character of the surface layer is affected, besides by known factors, also by the physico-chemical interaction with the working medium which results, e.g., in a hydrogenation of the hardened surface. Five illustr., six biblio. refs.

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USSR

UDC 539.4

SENIN, A. M., LAMASHEVSKIY, V. P., SIDOROV, N. G., KOPYLOV, A. K., NOVIKOV, N. V., and LEBEDEV, A. A., Kiev, Institute for Problems of Strength, Academy of Sciences UkrSSR

"Strength of Welded Pipe Joints from Heterogeneous Metals at Room and Low Temperatures"

Kiev, Problemy Prochnosti, No 8, Aug 70, pp 64-69

Abstract: The results are presented of an investigation of the strength of welded pipe joints made from heterogeneous metals, such as Kh18N10T steel and AMG-6 alloy, using friction welding and a soft AD1 aluminum interlayer. Tests were conducted under various loading conditions at room (20°C) and low temperatures (-180°C). The effect of the scale factor on strength was investigated by varying the pipe diameter, the width of the interlayer, and the shape of the joints. The results show that the width of the soft interlayer in a square butt joint substantially affects the strength of the joint, and that qualitatively different effects are obtained at different temperatures. At room temperature the strength of the joint decreases with interlayer width, while at -196°C the strength increases.

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SENIN, A. M., et al, Problemy Prochnosti, No 8, Aug 70, pp 64-69

In order to determine the magnitude of thermal stress, an investigation was made of the stress level in the soft interlayer and in joined items during cooling. The measurement of thermal deformations of welded joint elements was conducted tensometrically. The investigation of the effect of loading conditions on strength characteristics was conducted on a test bench designed for combined loading of pipe samples by axial force and internal pressure under conditions of room and low temperatures. The axial and tangential stresses were computed by Lamé formulas for a thick wall cylinder under internal pressure. The fracture stress levels, during application of axial force, internal pressure, and combined proportional loading by axial force and internal pressure at 20° and -180°C are presented in graphs and tables.

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